Proposal to Include End of Course Test Results
In Middle School Absolute Ratings
May 2007

Background

The Education Accountability Act of 1998 (EAA) defines the "Absolute Performance" of schools in the state accountability system as, "…the rating a school will receive based on the percentage of students meeting standard on the state's standards based assessment" (Section 59-110 (8)). The EAA provided for the development of End of Course tests based on state academic standards for "gateway courses awarded Carnegie units of credit in English/language arts, mathematics, science, and social studies" (Section 59-18-310 (B)). The End of Course tests are based on the state high school course academic standards and, as standards-based assessments, are used in the school and district accountability system. Currently, End of Course tests in use for school and district accountability are available for the Algebra I/Math for the Technologies II, English I, and Physical Science courses (End of Course tests for Biology I/Applied Biology II were administered through 2005-2006 but not in the 2006-2007 school year). The End of Course test for U.S. History and the Constitution has been field-tested and is currently under review by the Education Oversight Committee for adoption.

The End of Course test results are currently included in the calculation of high school and school district ratings, but are not included in the calculation of middle school ratings. While most students take Algebra I and English I courses in high school (most in grade 9), significant numbers of middle school students take one or more of these high school credit courses in middle school (grades 7 or 8). A small number of middle school students take Physical Science for high school credit in grade 8, as well. The students taking high school credit courses in the middle school grades are participating in accelerated academic programs. Middle school students who take high school credit courses are required to take the End of Course tests for those courses in addition to the PACT assessments in English Language Arts (ELA), Mathematics, Science, and Social Studies.

In 2005 the Testing Task Force, concerned about the double-testing of middle school students taking high school credit courses, recommended "that actions be taken so that Algebra I and English I scores be equated to grade level PACT so that middle school students are not required to take both tests" (Testing Task Force, 2005, page 9). The State Department of Education (SDE) conducted technical studies of equating the PACT and End of Course results for 2004 and 2005 (equating PACT Math with Algebra I and PACT ELA with English I) and found that the PACT and End of Course results were not sufficiently related that End of Course test scores could be substituted for or converted to PACT scores. The differences in the scores from the two sets of tests were attributed to differences in the academic standards between the high school credit courses and the grade-level academic standards. Since the high school diploma exit examination (HSAP) is based on the academic standards through grade 8 as well as high school course standards, it is important that student performance on the grade level standards through grade 8 be measured so appropriate remediation can be provided to students. Thus both PACT and End of Course tests continue to be administered to middle school students taking high school credit courses.

Middle school administrators have expressed concerns that the report card ratings for their schools are based exclusively on student PACT performance while the results from the standards-based End of Course tests taken by their students are included only in the school district ratings. In response to these concerns, a methodology was devised to include End of

Course test results along with PACT results for the calculation of middle school Absolute Ratings. This report describes that methodology, presents the results from simulations based on the methodology, and makes recommendations regarding the adoption of the methodology.

Methodology

<u>Description of the Data</u>

First of all, the numbers of middle schools which may be affected by a change in the Absolute Rating calculations were identified. Table 1 lists the distributions of the grade levels of schools containing the middle school grades 6, 7, or 8 in 2006. The 276 schools containing these grade levels have the potential to be affected by an Absolute Rating calculation which includes End of Course test results. The schools in this group having grade 6 as the terminal grade are not likely to have students taking high school credit courses, and some of the schools containing grades 7 or 8 may not offer high school credit courses to their students, so these schools would not be affected by the addition of End of Course results to the ratings system.

Table 1
Grade Organizations of Schools Containing Grades 6, 7, or 8 in 2005-2006

Grade Level Span	Number (%)
1 – 7	2 (0.7)
1 – 8	18 (6.5)
1 – 12	2 (0.7)
2 – 8	3 (1.1)
4 – 8	4 (1.5)
5 – 7	1 (0.4)
5 – 8	10 (3.6)
6	3 (1.1)
6 – 7	1 (0.4)
6 – 8	180 (65.2)
6 – 9	1 (0.4)
6 – 11	1 (0.4)
6 – 12	5 (1.8)
7 – 8	28 (10.1)
7 – 9	3 (1.1)
7 -12	11 (4.0)
8 – 9	1 (0.4)
8 – 12	2 (0.7)
Total	276 (100)

Total may not equal 100% due to rounding.

Five of the schools containing grades 6 through 8 had grade 9 as their terminal grade. The ninth grade End of Course test results in these schools are not used for the calculation of the ratings of the high schools containing grades 10 through 12 which they feed, but they can be combined with the PACT results to calculate middle school ratings.

Second, the 2005-2006 End of Course test results for the middle school grade levels and for grade 9 were obtained. There were no results for students attending grade 6, and there were

no Biology I results for grades 7 or 8. The grade-level Algebra I results are listed in Table 2, English I results in Table 3, and the Physical Science results in Table 4.

Table 2
Algebra I End of Course Test Performance in 2005-2006
Grades 7, 8, and 9

Score on Algebra I Test	Grade Level		
	Grade 7 Number Students (%)	Grade 8 Number Students (%)	Grade 9 Number Students (%)
A	1,008 (63.0)	5,285 (42.6)	3,298 (11.4)
B	316 (19.8)	2,893 (23.3)	4,483 (15.5)
C	182 (11.4)	2,776 (22.4)	8,490 (29.4)
D	72 (4.5)	1,020 (8.2)	6,805 (23.6)
F	21 (1.3)	426 (3.4)	5,801 (20.1)
Total (%)	1,599 (100)	12,400 (100)	28,877 (100)

Table 3
English I End of Course Test Performance in 2005-2006
Grades 7, 8, and 9

Score on English I Test	Grade Level		
	Grade 7 Number Students (%)	Grade 8 Number Students (%)	Grade 9 Number Students (%)
A	0 (0)	1,929 (27.2)	4,472 (8.9)
B	0 (0)	2,210 (31.2)	6,654 (13.2)
C	1 (100)	2,016 (28.4)	11,722 (23.2)
D	0 (0)	672 (9.5)	10,790 (21.4)
F	0 (0)	262 (3.7)	16,816 (33.3)
Total (%)	1 (100)	7,089 (100)	50,454 (100)

Table 4
Physical Science End of Course Test Performance in 2005-2006
Grades 7, 8, and 9

Score on Physical Science Test	Grade Level		
	Grade 7 Number Students (%)	Grade 8 Number Students (%)	Grade 9 Number Students (%)
A	1 (50)	77 (12.9)	3,139 (7.0)
B	0 (0)	99 (16.6)	3,999 (8.9)
C	0 (0)	166 (27.8)	6,094 (13.5)
D	1 (50)	113 (18.9)	8,100 (18.0)
F	0 (0)	143 (23.9)	23,688 (52.6)
Total (%)	2 (100)	598 (100)	45,020 (100)

Algebra I was the course taken most frequently by middle school students (approximately 14,000 students in grades 7 and 8), followed by English I (approximately 7,000 students in grade 8), and Physical Science (approximately 600 students in grade 8). Not surprisingly, the academically accelerated middle school students taking these high school credit courses performed well on the End of Course tests, with almost one-half scoring at the "A" level on the Algebra I test, about one-fourth scoring "A" on the English I test, and about one in eight scoring "A" on the Physical Science test. The performance of the middle school students was excellent compared to the performance of ninth-graders, 11 percent of whom scored "A" in Algebra I; 9 percent of whom scored "A" in English I; and 7 percent of whom scored "A" in Physical Science.

Simulation of 2007 Absolute Ratings Based on Combined PACT and End of Course Test Data

The methodology proposed for combining PACT and End of Course test results in the calculation of middle school Absolute Ratings is the same as the methodology currently used for calculating these ratings (see the 2006-2007 Accountability Manual, pages 15-19, for a description of this methodology). However, the proposed ratings calculation includes the End of Course test results in addition to the PACT results.

The calculation of simulated middle school ratings based on both PACT and End of Course data was accomplished by converting individual student End of Course test scores to the same 1 to 5 point scale used for the PACT test score data. To convert the End of Course test scores to the 1 – 5 point scale, the values listed in Table 5 were used.

Table 5
Conversion of End of Course Test Scores
To 1 to 5 Point Scale Used for Calculation of Middle School Absolute Ratings

End of Course Test Score	Point Value for Calculating Rating
A	5
B	4
C	3
D	2
F	1

Once the individual student End of Course test scores were converted to the 1 – 5 point scale, the End of Course test points were treated in the calculation of the index for the Absolute Rating in the same way as PACT scores for each grade and subject area. Algebra I scores were combined with PACT Math scores, English I scores were combined with PACT ELA scores, and Physical Science scores were combined with PACT Science scores; there were no End of Course test scores in Social Studies so only PACT Social Studies data were used for the calculations.

For schools containing grades 6 through 8 or 6 through 9, an index based on the combined PACT and End of Course points was calculated for each subject area by adding up the total number of points scored (the numerator) and dividing by the total number of student scores (denominator). The subject area indexes were combined based on the weightings specified in Act 254 (for the 2007 simulation, ELA, Math, Science, and Social Studies were weighted equally, or 25% each for grades 6 through 9, for the calculation of the overall school index).

For the 11 schools which had grade 5 as the lowest grade level but also contained grades 6, 7, or 8, the methodology was revised somewhat in response to the requirement in Act 254 that subject areas be weighted differently in grade 5 than in grade 6 or above. Beginning in 2007, PACT English language arts and mathematics are to be weighted 30% each and science and social studies are to be weighted 20% each in grades 3 through 5 in the calculation of the absolute rating index. The four PACT subject areas are to be weighted 25% each in grade 6 or above. For the schools containing grade 5, an index was calculated for grade 5 and a second index was calculated for grades 6 and above based on the appropriate weights for the subject areas. A school index was calculated by calculating the average of the grade level indexes, with the grade 5 index weighted by the number of test scores in grade 5, and the grade 6 and above index weighted by the number of test scores in grades 6 and above. These two values were summed (numerator), and the sum was divided by the total number of PACT and End of Course records available across all the grades (denominator).

The school absolute indexes were rounded to the nearest tenth of a point. The rounded indexes were compared to the values in the table on page 18 of the 2007 Accountability Manual to determine the Absolute Rating for the schools. Examples illustrating the calculation of the Absolute Rating based on both PACT and End of Course results are provided in the Appendix.

<u>Simulation Results</u>

The study of the 2007 Absolute Ratings for middle schools based on 2006 data involved two simulations: simulating the ratings based on PACT scores alone, which is the current methodology used for calculating the ratings; and simulating the ratings based on both PACT and End of Course test data. The results of the simulations are compared in Table 6.

Table 6
Simulation of Absolute Ratings Based on 2007 Criteria
Ratings Calculated Based on PACT Only
Compared to Ratings Based on PACT + End of Course Test Results

Effects of Combining End of Course Test Results with PACT Data				Number of Schools
Absolute ratings HIGHER when End of Course results are combined with PACT data				
	Rating with PACT data only	Rating when End of Course data are combined with PACT	Number of Schools	
	Average	Good	3	
	Below Average	Average	5	
	Unsatisfactory	Below Average	4	12
Absolute ratings LOWER when End of Course results are combined with PACT data				0
Absolute ratings SAME when End of Course data are combined with PACT data				227
Schools which did not have End of Course test results to calculate comparison				37
Total				276

The simulations indicated that the Absolute Ratings of 12 middle schools would be higher if both PACT and End of Course test data were used for calculating the ratings than if the ratings were based on PACT data alone. The simulations did not identify any schools which would have lower absolute ratings if End of Course data were combined with PACT data. The inclusion of End of Course test data along with PACT data neither raised nor lowered the simulated Absolute Ratings for the 227 middle schools for which both PACT and End of Course test data were available. A total of 37 middle schools did not have any End of Course tests administered in 2006, so simulations of the results of combining PACT and End of Course test data for these schools were not possible. Since the performance of middle school students taking End of Course tests is generally high, it is not surprising that the Absolute Ratings for some middle schools were simulated to be higher based on both PACT and End of Course test data than the ratings for the same schools based on PACT alone.

It is proposed that the calculation of the Absolute Ratings for middle schools be modified to include the results from End of Course tests administered in the middle schools. The proposed modification of the ratings calculation pertains only to the Absolute Ratings, not the Improvement Ratings. The EAA specifies that the Improvement Ratings are to be based on longitudinally matched student test results, and the administration of PACT tests in grades 3

through 8 allow the longitudinal matching of student data. However, middle school students taking End of Course tests generally take those tests only once, so pre- and post-test End of Course test data are not available for the Improvement Rating calculations. The Improvement Ratings for middle schools will continue to be based exclusively on student PACT performance.

Recommendations

1. Calculate Absolute Ratings using data from both PACT and End of Course tests administered in middle schools (schools having PACT-tested grades through grade 8 and schools having PACT-tested grades and grade 9 as the terminal grade level).
2. Begin including End of Course test results in the middle school Absolute Ratings with the 2007-2008 school year for reporting on the November 2008 report card.
3. Continue calculating middle school Improvement Ratings based on PACT results only.

APPENDIX

Example 1: Calculation of Absolute Rating Using Both PACT and End of Course Test Data for School Containing Grades 6, 7, and 8

Smith Middle School contains grades 6, 7, and 8. There are 100 students attending grade 8 in Smith Middle School. Twenty of those students took the Algebra I high school credit course. All 100 students took the PACT Math test, and 20 of those students also took the Algebra I End of Course test. The school has 120 scores for mathematics in grade 8. The students' PACT Math and Algebra I scores on the two tests are recorded below:

PACT Math Performance (Points)	Number of Scores		Algebra I Performance (Points)	Number of Scores
Advanced (5)	10		A (5)	8
Proficient (4)	20		B (4)	5
Basic (3)	45		C (3)	4
Below Basic 2 (2)	15		D (2)	2
Below Basic 1 (1)	10		F (1)	1

Similarly, 20 of the students enrolled in grade 8 also took the English I high school credit course. Thus the school also has 120 scores in ELA in grade 8. The students' scores on PACT ELA and English I tests are recorded below:

PACT ELA Performance (Points)	Number of Scores		English I Performance (Points)	Number of Scores
Advanced (5)	5		A (5)	4
Proficient (4)	30		B (4)	6
Basic (3)	45		C (3)	6
Below Basic 2 (2)	10		D (2)	3
Below Basic 1 (1)	10		F (1)	1

None of the grade 8 students took the Physical Science high school credit course, so none took the Physical Science End of Course test. The eighth graders' scores on the PACT Science and Social Studies tests are recorded below:

PACT Science Performance (Points)	Number of Scores		PACT Social Studies Performance (Points)	Number of Scores
Advanced (5)	2		Advanced (5)	5
Proficient (4)	13		Proficient (4)	25
Basic (3)	45		Basic (3)	45
Below Basic 2 (2)	20		Below Basic 2 (2)	15
Below Basic 1 (1)	20		Below Basic 1 (1)	10

Smith Middle School enrolled 110 students in grade 7 and 105 students in grade 6. There were no End of Course tests administered in grades 6 and 7 in Smith Middle School.

The PACT results for students in grade 7 are listed below.

PACT ELA Performance (Points)	Number of Scores		PACT Math Performance (Points)	Number of Scores
Advanced (5)	3		Advanced (5)	15
Proficient (4)	25		Proficient (4)	20
Basic (3)	49		Basic (3)	48
Below Basic 2 (2)	17		Below Basic 2 (2)	14
Below Basic 1 (1)	16		Below Basic 1 (1)	13

PACT Science Performance (Points)	Number of Scores		PACT Social Studies Performance (Points)	Number of Scores
Advanced (5)	13		Advanced (5)	12
Proficient (4)	17		Proficient (4)	15
Basic (3)	33		Basic (3)	42
Below Basic 2 (2)	27		Below Basic 2 (2)	26
Below Basic 1 (1)	20		Below Basic 1 (1)	15

The PACT results for students in grade 6 are listed below.

PACT ELA Performance (Points)	Number of Scores		PACT Math Performance (Points)	Number of Scores
Advanced (5)	7		Advanced (5)	16
Proficient (4)	25		Proficient (4)	23
Basic (3)	40		Basic (3)	44
Below Basic 2 (2)	17		Below Basic 2 (2)	11
Below Basic 1 (1)	16		Below Basic 1 (1)	11

PACT Science Performance (Points)	Number of Scores		PACT Social Studies Performance (Points)	Number of Scores
Advanced (5)	12		Advanced (5)	17
Proficient (4)	13		Proficient (4)	25
Basic (3)	29		Basic (3)	40
Below Basic 2 (2)	25		Below Basic 2 (2)	13
Below Basic 1 (1)	26		Below Basic 1 (1)	10

The index for each subject area across grades 6, 7, and 8 is calculated:

Index for Mathematics:

Point Weights	Number Scores At Each Point Weight	Point Weight *multiplied by* Number of Scores
5	49	245
4	68	272
3	141	423
2	42	84
1	35	35
Totals	335	1059

Index = Total Point Weights / Total Number of Scores
Math Index = 1059/335 = 3.1611

Index for ELA:

Point Weights	Number Scores At Each Point Weight	Point Weight *multiplied by* Number of Scores
5	19	95
4	86	344
3	140	420
2	47	94
1	43	43
Totals	335	996

Index = Total Point Weights / Total Number of Scores
ELA Index = 996/335 = 2.9731

Index for Science:

Point Weights	Number Scores At Each Point Weight	Point Weight *multiplied by* Number of Scores
5	27	135
4	43	172
3	107	321
2	72	144
1	66	66
Totals	315	838

Index = Total Point Weights / Total Number of Scores
Science Index = 838/315 = 2.6603

Index for Social Studies:

Point Weights	Number Scores At Each Point Weight	Point Weight *multiplied by* Number of Scores
5	34	170
4	65	260
3	127	381
2	54	108
1	35	35
Totals	315	954

Index = Total Point Weights / Total Number of Scores
Social Studies Index = 954/315 = 3.0285

The overall absolute index for the school is calculated by averaging the four subject-area indexes, giving each subject area index equal weighting.

School Index = (Math Index + ELA Index + Science Index + Social Studies Index) / 4

Smith Middle School Absolute Index:

(3.1611 + 2.9731 + 2.6603 +3.0285) / 4 = 2.9557

The absolute index is rounded to the nearest tenth of a point and compared to the values in the following table to determine the rating.

Index Values for Determining Absolute Ratings

Year	Range of Indexes Corresponding to Absolute Rating				
	Excellent	**Good**	**Average**	**Below Average**	**Unsatisfactory**
2007	3.8 and above*	3.4–3.7*	3.0–3.3	2.6–2.9	Below 2.6
2008	3.9 and above*	3.5–3.8*	3.1–3.4	2.7–3.0	Below 2.7
2009	4.0 and above*	3.6–3.9*	3.2–3.5	2.8–3.1	Below 2.8
2010	4.1 and above*	3.7–4.0*	3.3–3.6	2.9–3.2	Below 2.9

*School must meet the state's Adequate Yearly Progress (AYP) objectives for the category "*all* students."

The Smith Middle School absolute index of 2.9557 rounds to 3.0. Based on the table, an index of 3.0 corresponds to an Absolute Rating for Smith Middle School of "Average."

Example 2: Calculation of Absolute Rating Using Both PACT and End of Course Test Data for School Containing Grades 5, 6, 7, and 8

Jones Middle School contains grades 5, 6, 7, and 8. There are 100 students attending grade 8 in Jones Middle School. Twenty of those students took the Algebra I high school credit course. All 100 students took the PACT Math test, and 20 of those students also took the Algebra I End of Course test. The school has 120 scores for mathematics in grade 8. The students' PACT Math and Algebra I scores on the two tests are recorded below:

PACT Math Performance (Points)	Number of Scores		Algebra I Performance (Points)	Number of Scores
Advanced (5)	10		A (5)	8
Proficient (4)	20		B (4)	5
Basic (3)	45		C (3)	4
Below Basic 2 (2)	15		D (2)	2
Below Basic 1 (1)	10		F (1)	1

Similarly, 20 of the students enrolled in grade 8 also took the English I high school credit course. Thus the school also has 120 scores in ELA in grade 8. The students' scores on PACT ELA and English I tests are recorded below:

PACT ELA Performance (Points)	Number of Scores		English I Performance (Points)	Number of Scores
Advanced (5)	5		A (5)	4
Proficient (4)	30		B (4)	6
Basic (3)	45		C (3)	6
Below Basic 2 (2)	10		D (2)	3
Below Basic 1 (1)	10		F (1)	1

None of the grade 8 students took the Physical Science high school credit course, so none took the Physical Science End of Course test. The eighth graders' scores on the PACT Science and Social Studies tests are recorded below:

PACT Science Performance (Points)	Number of Scores		PACT Social Studies Performance (Points)	Number of Scores
Advanced (5)	2		Advanced (5)	5
Proficient (4)	13		Proficient (4)	25
Basic (3)	45		Basic (3)	45
Below Basic 2 (2)	20		Below Basic 2 (2)	15
Below Basic 1 (1)	20		Below Basic 1 (1)	10

Jones Middle School enrolled 110 students in grade 7, 105 students in grade 6, and 100 students in grade 5. There were no End of Course tests administered in grades 6 and 7 in Jones Middle School.

The PACT results for students in grade 7 are listed below.

PACT ELA Performance (Points)	Number of Scores		PACT Math Performance (Points)	Number of Scores
Advanced (5)	3		Advanced (5)	15
Proficient (4)	25		Proficient (4)	20
Basic (3)	49		Basic (3)	48
Below Basic 2 (2)	17		Below Basic 2 (2)	14
Below Basic 1 (1)	16		Below Basic 1 (1)	13

PACT Science Performance (Points)	Number of Scores		PACT Social Studies Performance (Points)	Number of Scores
Advanced (5)	13		Advanced (5)	12
Proficient (4)	17		Proficient (4)	15
Basic (3)	33		Basic (3)	42
Below Basic 2 (2)	27		Below Basic 2 (2)	26
Below Basic 1 (1)	20		Below Basic 1 (1)	15

The PACT results for students in grade 6 are listed below.

PACT ELA Performance (Points)	Number of Scores		PACT Math Performance (Points)	Number of Scores
Advanced (5)	7		Advanced (5)	16
Proficient (4)	25		Proficient (4)	23
Basic (3)	40		Basic (3)	44
Below Basic 2 (2)	17		Below Basic 2 (2)	11
Below Basic 1 (1)	16		Below Basic 1 (1)	11

PACT Science Performance (Points)	Number of Scores		PACT Social Studies Performance (Points)	Number of Scores
Advanced (5)	12		Advanced (5)	17
Proficient (4)	13		Proficient (4)	25
Basic (3)	29		Basic (3)	40
Below Basic 2 (2)	25		Below Basic 2 (2)	13
Below Basic 1 (1)	26		Below Basic 1 (1)	10

The PACT results for students in grade 5 are listed below.

PACT ELA Performance (Points)	Number of Scores		PACT Math Performance (Points)	Number of Scores
Advanced (5)	3		Advanced (5)	16
Proficient (4)	31		Proficient (4)	18
Basic (3)	46		Basic (3)	42
Below Basic 2 (2)	10		Below Basic 2 (2)	13
Below Basic 1 (1)	10		Below Basic 1 (1)	11

PACT Science Performance (Points)	Number of Scores		PACT Social Studies Performance (Points)	Number of Scores
Advanced (5)	15		Advanced (5)	13
Proficient (4)	12		Proficient (4)	11
Basic (3)	34		Basic (3)	39
Below Basic 2 (2)	20		Below Basic 2 (2)	20
Below Basic 1 (1)	19		Below Basic 1 (1)	17

First, the index for each subject area across grades 6, 7, and 8 is calculated:

Index for Mathematics:

Point Weights	Number Scores At Each Point Weight	Point Weight *multiplied by* Number of Scores
5	49	245
4	68	272
3	141	423
2	42	84
1	35	35
Totals	335	1059

Index = Total Point Weights / Total Number of Scores
Grade 6-8 Math Index = 1059/335 = 3.1611

Index for ELA:

Point Weights	Number Scores At Each Point Weight	Point Weight *multiplied by* Number of Scores
5	19	95
4	86	344
3	140	420
2	47	94
1	43	43
Totals	335	996

Index = Total Point Weights / Total Number of Scores
Grade 6-8 ELA Index = 996/335 = 2.9731

Index for Science:

Point Weights	Number Scores At Each Point Weight	Point Weight *multiplied by* Number of Scores
5	27	135
4	43	172
3	107	321
2	72	144
1	66	66
Totals	315	838

Index = Total Point Weights / Total Number of Scores
Grade 6-8 Science Index = 838/315 = 2.6603

Index for Social Studies:

Point Weights	Number Scores At Each Point Weight	Point Weight *multiplied by* Number of Scores
5	34	170
4	65	260
3	127	381
2	54	108
1	35	35
Totals	315	954

Index = Total Point Weights / Total Number of Scores
Grade 6-8 Social Studies Index = 954/315 = 3.0285

The overall absolute index for grades 6, 7, and 8 is calculated by averaging the four subject area indexes, giving each subject area index equal weighting.

Index = (Math Index + ELA Index + Science Index + Social Studies Index) / 4

Jones Middle School Absolute Index for grades 6, 7, and 8:

(3.1611 + 2.9731 + 2.6603 +3.0285) / 4 = 2.9557

Now, the index for each subject area in grade 5 is calculated:

Index for Mathematics:

Point Weights	Number Scores At Each Point Weight	Point Weight *multiplied by* Number of Scores
5	16	80
4	18	72
3	42	126
2	13	26
1	11	11
Totals	100	315

Index = Total Point Weights / Total Number of Scores
Grade 5 Math Index = 315/100 = 3.1500

Index for ELA:

Point Weights	Number Scores At Each Point Weight	Point Weight *multiplied by* Number of Scores
5	3	15
4	31	124
3	46	138
2	10	20
1	10	10
Totals	100	307

Index = Total Point Weights / Total Number of Scores
Grade 5 ELA Index = 307/100 = 3.0700

Index for Science:

Point Weights	Number Scores At Each Point Weight	Point Weight *multiplied by* Number of Scores
5	15	75
4	12	48
3	34	102
2	20	40
1	19	19
Totals	100	284

Index = Total Point Weights / Total Number of Scores
Grade 5 Science Index = 284/100 = 2.8400

Index for Social Studies:

Point Weights	Number Scores At Each Point Weight	Point Weight *multiplied by* Number of Scores
5	13	65
4	11	44
3	39	117
2	20	40
1	17	17
Totals	100	283

Index = Total Point Weights / Total Number of Scores
Grade 5 Social Studies Index = 283/100 = 2.8300

The overall absolute index for grade 5 is calculated by averaging the four subject-area indexes, using the following subject area weightings:

Grade 5 Index = (0.3*Math Index) + (0.3*ELA Index) + (0.2*Science Index) + (0.2*Social Studies Index)

Jones Middle School Absolute Index for grade 5:

(0.3*3.1500) + (0.3*3.0700) + (0.2*2.8400) + (0.2*2.8300) = 3.000

The overall absolute index for the school is calculated by averaging the index for grades 6 through 8 with the index from grade 5, weighting the indexes by the total number of scores for the two sets of grade levels and dividing by the total number of scores in the school.

Overall School Index *equals*
    ((Grades 6 through 8 Index*Total Number Scores in Grades 6-8)
                    plus
    (Grade 5 Index*Total Number Scores in Grade 5))
                    divided by
    ((Total Number Scores in Grades 6 through 8)
                    plus
    (Total Number Scores in Grade 5))

Jones Middle School Absolute Index:

((2.9557*1300) + (3.0000*400)) / (1300 + 400) = 2.9661

The absolute index is rounded to the nearest tenth of a point and compared to the values in the following table to determine the rating.

Index Values for Determining Absolute Ratings

Year	Range of Indexes Corresponding to Absolute Rating				
	Excellent	**Good**	**Average**	**Below Average**	**Unsatisfactory**
2007	3.8 and above*	3.4–3.7*	3.0–3.3	2.6–2.9	Below 2.6
2008	3.9 and above*	3.5–3.8*	3.1–3.4	2.7–3.0	Below 2.7
2009	4.0 and above*	3.6–3.9*	3.2–3.5	2.8–3.1	Below 2.8
2010	4.1 and above*	3.7–4.0*	3.3–3.6	2.9–3.2	Below 2.9

*School must meet the state's Adequate Yearly Progress (AYP) objectives for the category "*all* students."

The Jones Middle School absolute index of 2.9661 rounds to 3.0. Based on the table, an index of 3.0 corresponds to an Absolute Rating for Jones Middle School of "Average."